

CLAIMS

1. An electron beam lithography apparatus for concentrically drawing a plurality of circles on a substrate by applying an electron beam while rotating the substrate, the electron beam lithography apparatus comprising:

a beam deflection portion for deflecting the electron beam to change an irradiation position of the electron beam;

a synchronization signal generation portion for generating a synchronization signal which is in synchronization with the rotation of the substrate;

a controller for controlling the beam deflection portion on the basis of the synchronization signal in order to deflect the electron beam in a rotational radial direction of the substrate and in a rotational tangential direction of the substrate opposite to a rotational direction of the substrate, while drawing transition is performed from one circle to another circle; and

a beam cutoff portion for cutting off the irradiation of the electron beam on the substrate, for a period during the electron beam is deflected in the rotational radial direction.

2. The electron beam lithography apparatus according to claim 1, wherein the controller deflects the electron beam in the rotational tangential direction of the substrate being the same direction as the movement of the substrate before drawing transition is performed from the one circle to the another circle.

3. The electron beam lithography apparatus according to claim 1, wherein the controller deflects the electron beam in the rotational tangential direction so as to overwrite a portion of

the circle including a drawing connection position.

4. The electron beam lithography apparatus according to claim 1, wherein the beam cutoff section varies an intensity of the electron beam applied to the substrate at a predetermined rate before or after a period when the electron beam is deflected in the rotational radial direction.

5.(Amended) An electron beam lithography method for drawing a plurality of circles on a substrate by applying an electron beam while rotating the substrate, the method comprising:

10 a transition controlling step of deflecting the electron beam in a rotational radial direction of the substrate and in a rotational tangential direction of the substrate opposite to a rotational direction of the substrate, upon performing drawing transition from one circle to another circle; and

15 a beam cutoff step of cutting off the irradiation of the electron beam on the substrate, for a period during the electron beam is deflected in the rotational radial direction.

6.(Amended) The electron beam lithography method according to claim 5, wherein the transition controlling step includes a step of
20 deflecting the electron beam in the rotational tangential direction of the substrate being the same direction as the movement of the substrate before drawing transition from the one circle to the another circle is performed.

7.(Added) The electron beam lithography method according to claim
25 5, wherein the transition controlling step deflects the electron beam in the rotational tangential direction so as to overwrite a portion of the circle including a drawing connection position.

8. (Added) The electron beam lithography method according to claim
5, comprising the step of varying an intensity of the electron beam
applied to the substrate at a predetermined rate before or after
a period when the electron beam is deflected in the rotational radial
5 direction.